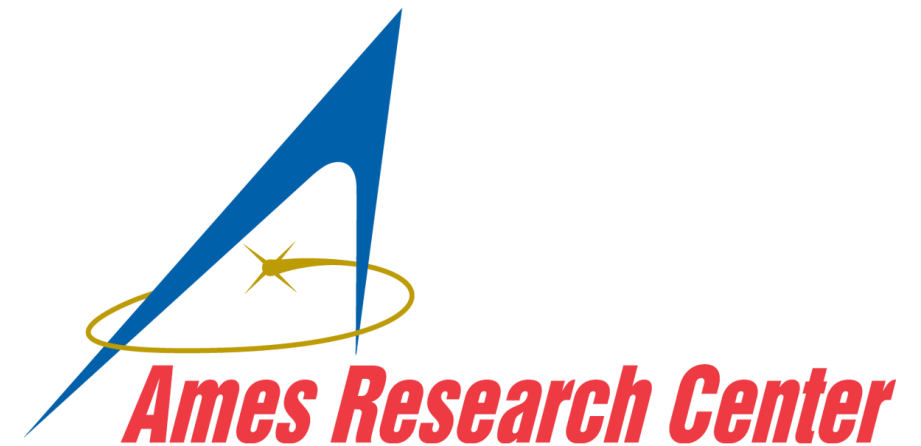


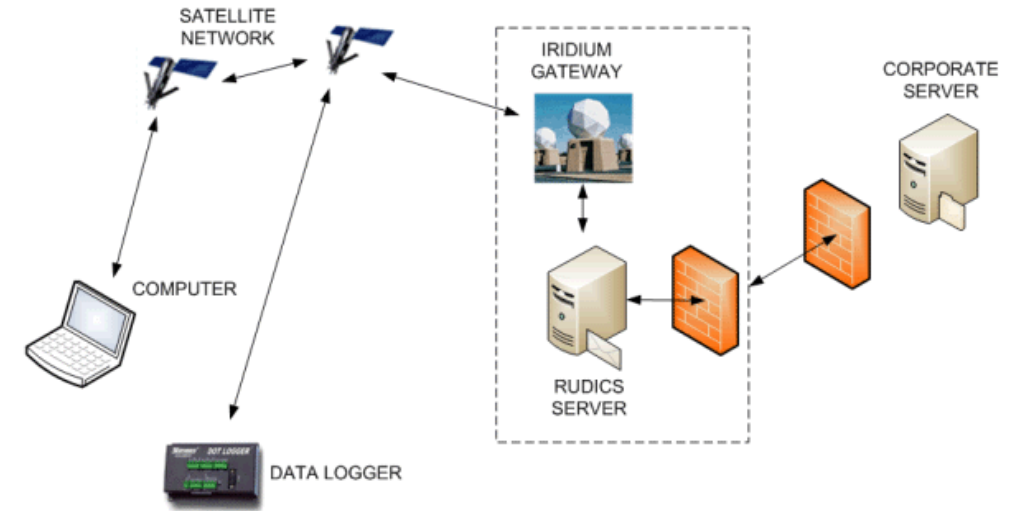
# Team TARDIGRADES

- Finan Bryan (ME)
- Joe Dennison (CompE)
- Robert Goes (Math & CS)
- Cosette King (CS)
- Lily Mortensen (MSE)
- Drew Pilchard (EE)
- Grace Rosenvall (ME)
- Harrison Thomsen (EE)
- Taegan Williams (CS)



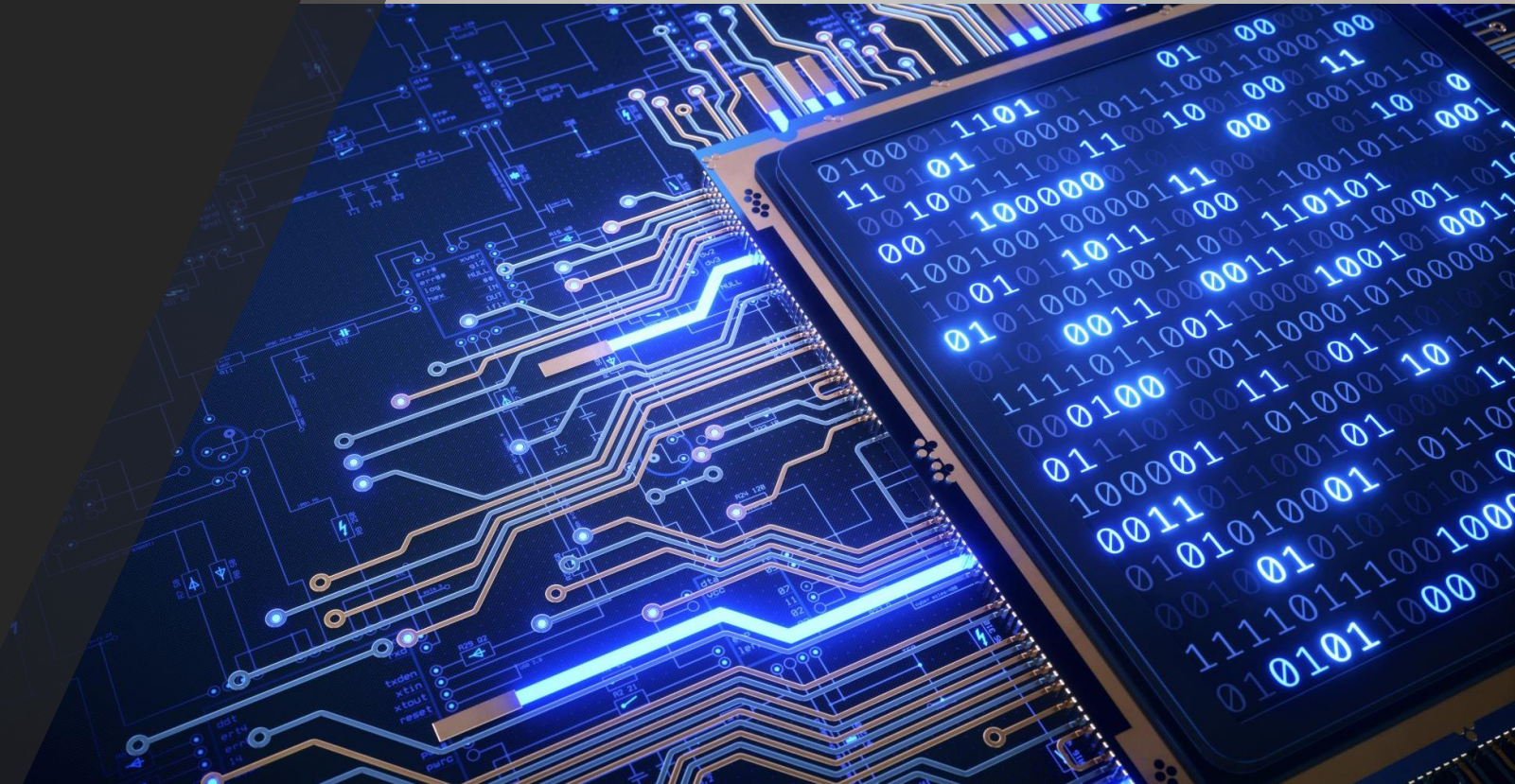
# 9523 - Problem Description

- Primary goal will be to complete the software and hardware development of a carrier module for the Iridium 9523 Satellite Modem.
- Iridium 9523 is a commercial satellite communications modem capable of operating in both Short Burst Data (SBD ('texting')) and streaming network (RUDICS (data)) modes.



# 9523 Specifications

- PCB Design for Space
  - Microcontroller, 30W GaN power converter, Iridium support circuitry
  - Professional class-3 manufacture after successful prototype
- Software Development
  - Real-time data handling and parsing
  - Onboard encryption/decryption
  - Update encryptions standards from AES 128 to AES 256
  - Development of device software and ground-based server asset





# Schedule-9523

[illegible]



# ADCS Problem Definition

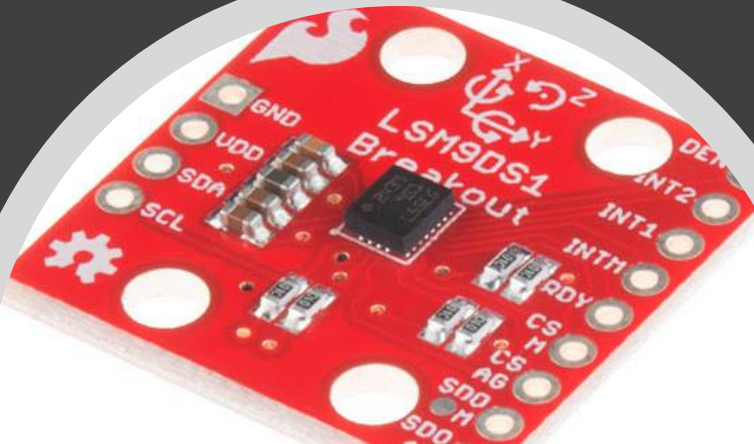
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To evaluate and combine COTS components to create a more cost effective ADCS unit prototype



# Component Research

- Reaction Wheels
- Sun Sensors
- Magnetorquers/Torque Rods
- IMU
- Magnetometers



# Schedule-ADCS/AI

[illegible]





# AI in the Sky: Jetson TX2

- **Ability to switch between programs running on the TX2**
- **Software to test the effects of radiation on a running program**
- **Demonstration of active machine learning & unique abilities of a GPU**





# Budget

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- Submitted purchase request, awaiting delivery of microcontrollers
- \$3000 available, \$100 so far spent on microcontrollers
- Budget requirements for ADCS/AI in Sky are unknown until further research is completed.